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ABSTRACT

The Portfolio Project was conducted to promote lifelong, self-directed learning in the workplace. The project, which offered courses on basic skills, supervisory communications, and English as a second language, was initiated as a literacy demonstration project by the Casco Bay Partnership (CBP), which brought together government, educators, and several local businesses in Portland, Maine. The project was based on a portfolio process with four goals: authoring one's learning; documenting the evidence of learning and development; fostering reflective learning; and assessing one's own learning. After a review of the literature on portfolios, a portfolio process tailored to the workplace was developed. It was based on the following principles: make goals explicit for students; keep samples of student work; provide students with a folder or a notebook; build on routines already in place; be persistent in engaging students in reflection; conduct end-of-course portfolio presentations; and set new goals. Case studies of the process in use at three worksites (a producer of wood-boring tools, a manufacturing plant, and a food processing plant) confirmed the effectiveness of portfolios as a means of encouraging professional growth and development in the workplace. In the case studies, portfolios proved to be effective tools for both assessment and development. (MN)

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Portfolio: A Tool for Self-directed Learning at Work

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Sometimes we don't believe what we have achieved.
But the portfolio helps us to remember....Yes, the portfolio is a memory.

- Casco Bay Partnership workers on the portfolio process -

In this paper we address the possibilities of the portfolio as a tool for self-directed learning in the workplace. While portfolios have gained increasing currency with writers and teachers of writing, at the secondary and post-secondary levels, and have long been used by photographers, painters, architects, and even brokers, they are only now being introduced into the workplace. They are arriving as the workplace itself faces the imperative for a knowledge-smart workforce, adaptable, able to work collaboratively, and capable of life-long, continuous learning. But how can such a goal be fostered or achieved? To organizations seeking effective ways to do this, the portfolio is emerging as one provocative possibility. This paper reports on an experiment with worker portfolios now being carried out in greater Portland, Maine at the Casco Bay Partnership for Workplace Education.

The Portfolio Project began as a means to further the larger goals of the Casco Bay Partnership (CBP). Initiated in 1993 through a U.S. Department of Education workplace literacy demonstration grant and a collaboration with the University of Southern Maine, the Casco Bay Partnership brings together government, educators, seven local businesses and their workers to promote lifelong, self-directed learning by providing educational opportunities in the workplace. It offers courses at partnership sites on workplace math, science, computer writing, communications, supervisory communications, life-long learning, and basic ESL. Sites vary from a tool manufacturer, a frozen food processor, a wood structures company, makers of semi-conductors, to New England's largest food distribution center--to name

several. Since 1995 the faculty of the CBP have also been engaged in testing an important hypothesis, that is: that engaging in constructing a learning portfolio can foster long-term, self-directed learning in adult workers.

In this paper we look at some results of the Casco Bay Partnership Portfolio Project. Using a case study method, we first present a context, describing how the portfolio project got started at CBP; we then document the results of the portfolio experiment in three CBP workplace sites, focussing on outcomes of student learning, and indicating faculty views of their own learning as well as that of their students. Finally, we suggest implications of this work. In brief, we outline the barriers faculty encountered in trying to implement a portfolio process within their classes as well as the clear possibilities of portfolios to foster worker self-directed learning. Although this paper is not a comprehensive review of the Casco Bay Portfolio Project, it offers early insights that reveal some issues that we believe bear closer attention and hold powerful potential. It also seems important to note that this portfolio experiment was undertaken within the context and larger goals of the Casco Bay Workplace Education Project, not as a free-standing enterprise. Thus the barriers to and potentials of portfolios must also be seen intertwined in this particular context.

The Portfolio Project
Context: Situating a Portfolio Project in the Workplace

The Casco Bay Partnership Portfolio Project came about serendipitously. It happened when one of us, Nona Lyons, was carrying out research on portfolios developed by interns learning to teach, a project also housed at the University of Southern Maine (USM). Lyons

had been mentoring interns of USM's Extended Teacher Education Program as they constructed a portfolio that was to demonstrate their development as a teacher. Later she interviewed the interns about the teacher portfolio process. Her research led her to believe that the portfolio experience helped new teachers become more reflective about their teaching and more aware of their own knowledge of practice (Lyons, in press). In discussing this work with Nancy Martz, the Director of the Casco Bay Partnership Project, Lyons (with Martz) became intrigued with the question: Could the portfolio serve a similar usefulness to a worker? Would constructing a worker-learner's portfolio engage workers in reflecting on their development and serve to facilitate the idea of learning as long-termed, personal yet tied to workplace needs? When a group of CBP faculty volunteered to take up these questions, the project was launched and an experiment in workplace education portfolios initiated.

Defining a Portfolio Process for the Workplace: CBP faculty began by reviewing the elements of a portfolio process outlined in the literature. They considered some of the ideas embedded in Lee Shulman's pioneering definition of a teaching portfolio: "A teaching portfolio is the structured documentary history of a carefully selected set of coached or mentored accomplishments substantiated by samples of student work and fully realized only through reflective writing, deliberation, and serious conversation" (Shulman, 1994). CBP faculty quickly defined their goals for a worker portfolio project. The four goals are:

- **Authoring One's Learning:** To support and encourage the student/worker's conception of him or herself as a learner, that is, the notion of the student as authoring his or her own learning.

- **Documenting the Evidence of Learning and Development:** To document the student/worker's development as a learner over time; to see the evidence of a student's progress as a learner.

- **Fostering Reflective Learning:** To foster the skill of reflection on one's own learning, teasing out the student/worker's own meaning.

- **Self-assessing Learning:** To encourage self-assessment so that students can set new learning goals appropriate to their on-going development as a planner, a thinker, and a continuous learner.

As Casco Bay Partnership faculty deepened their own awareness of the dynamic and interacting elements that define a portfolio process, they considered how to refine that for their own purposes. They came to see that there was a cycle of activities within a portfolio process that might work ideally as follows:

1. Student/worker defines goals/hopes for learning, what the worker hopes to achieve in a typical learning cycle;

2. Student/worker gathers samples of work, evidence of learning that will be included in a portfolio.

3. Student/worker reflects on what has been learned, identifying why it is important to him or her.

4. Student/worker makes a portfolio presentation, sharing with other workers, faculty and guests what one had done in a class and one's reflections on that.

5. Student/worker identifies new objectives and goals for one's own future learning.

6. Faculty use the portfolio presentation and work for on-going evaluation of student learning, for helping the student/worker set new goals, and for program review and revision.

In outlining these elements of an ideal portfolio process, the Casco Bay Partnership Portfolio Project anchored itself. Some fifteen faculty, representing the seven workplace sites--all volunteers--agreed to meet once a month to report to each other on their work with portfolios and to reflect on what it was they believed they were learning about the process, their students and themselves. In the second year of the project, faculty would begin the process of developing portfolios of their own. But as their efforts took shape that first year, it quickly became apparent that an immediate challenge to implementation would be to fit the portfolio process to their diverse workplace settings and to the equally diverse needs of their students.

Shaping the Portfolio Process to Fit the Workplace: Getting the project underway demanded creative thinking. It quickly became apparent that a set of dynamics were already at work in the classes taking place in the seven sites of the Casco Bay project. Goals had been set not only by the needs of an individual class but by the Casco Bay Project itself. For example, early on CBP had developed a survey tool called the "I CAN" inventory. Designed as a task-based assessment to facilitate goal-setting and the selection of specific topics within the curriculum (Martz, 1995), it provided a base-line for specific skills and topics to be addressed in a given class as it encouraged self-assessment in students. But as the portfolio project got underway, faculty now asked: How did the "I CAN" inventory fit with the idea of student goal-setting of the portfolio process? Would that seem redundant? be confusing?

Similarly, faculty struggled to fit reflective practices and the gathering and review of student work into their already bulging class schedules. When should they announce the idea

of a portfolio? Should it be mandatory? How would students react to the idea of sharing their work with one another? What was a worker portfolio for--assessment OR professional development?

Using their own intuition and creativity, and keeping in mind that they were engaged in an exploration, faculty began experimenting with the portfolio process using a varied set of approaches. In one instance a CBP faculty member began with what might seem the end of the process--with a presentation of student work. Building on an idea of having a graduation ceremony at the end of the year for all workers at her site, the American Tool Company, the faculty member invited all workers who were to be awarded certificates of achievement to share their work. To her amazement some forty workers showed up. Several read pieces of things they had written and others shared problems they had solved for their work setting. One person even demonstrated a science project he had undertaken in a "Science in the Workplace" class. For the faculty member this experience served to validate the idea of sharing and presenting student work-- key elements of the portfolio process. Now the portfolio process provided a needed rationale for continuing an effective practice.

Another portfolio project got underway when a CBP site coordinator provided everyone in his class with a notebook for their work, in effect, with a portfolio. Student work that had been scattered or kept at home found a place easily available for review. But the notebook became the visible embodiment of the portfolio. After attending a workshop on "Reflection" and the uses of portfolios, other CBP faculty members became convinced of the need to be persistent, to find ways to help students be reflective, and to be adamant about engaging in it. At one point, in putting together a pamphlet on the Casco Bay Partnership

Portfolio Project, faculty summarized their ideas for "Getting Started" with a portfolio process in the workplace, including the following:

- Make goals explicit for students: Begin by sharing the goals of the portfolio project and the idea of the student as a learner. Students should identify:"This is what I want to learn."
- Keep samples of student work: Students should be asked to keep samples of their work.
- Provide students with a folder or a notebook--a scaffold to the portfolio idea.
- Build on routines already in place: Use the "I CAN" inventories. Be comfortable.
- Be persistent in engaging students in reflection. Do it!
- Conduct end of course portfolio presentations. Presentations and conversations about student work are important. Keep them simple, sharing: What did I do? What did I learn? Why is that important?
- Set new goals. This is a good ending to the portfolio cycle.

But CBP faculty had already made an important discovery: it was possible to start a portfolio process at several different entry points--unlike other curricula. What continued to be discussed and debated was the question of how to distinguish between the purposes of portfolios--for assessment or professional development.

The following cases describe three CBP worksites in the greater Portland, Maine area and the experiences of three faculty members who took these suggestions and worked with their students to implement the portfolio idea in their classrooms. While not all report unqualified success, they offer nuanced insights into both the barriers they encountered and the value they found in their experiments. Each of the three faculty members were participants in the portfolio project meetings for the past two years. They were interviewed about their

experience, asked to say how they worked with portfolios, what stood out for them about the experience, what worked, what did not, and what they thought about using portfolios in their future workplace classes. Nona Lyons, the coordinator of the Casco Bay Partnership Portfolio Project, conducted the faculty meetings of the project; Linda Evans, a member of the Casco Bay Partnership project staff, and editor of the journal of student work, Writers at Work, attended all meetings of the portfolio project as liaison to the project. She and Lyons conducted the interviews for the following case studies. Each case reviews both the workplace context and the responses of students and faculty to the portfolio experience through the lens of the faculty member.

~ The Case Studies ~

Case #1: American Tool Company: The first case study of the CBP portfolio experiment is focussed on the work of Carol Fleishman, CBP site coordinator at the American Tool Companies - Gorham Division. American Tool is the largest producer of wood-boring tools in the world, specializing in drill bits, taps and dies. The Company has a tradition of in-house training which has enabled them to change production to a "just-in-time" system improving their turnaround times and inventory control. The 180 employees (46% women) include 30% who are speakers of English as a second language. American Tool introduced a workcell organization in which employees are now increasingly responsible for operation of multiple pieces of equipment, must be cross-trained, and must participate in cooperative activities with co-workers. These require proficiency in speaking English, reading and writing a variety of work-related documents, using basic math, and making decisions in a group setting. American

Tool offers a "pay for skills" incentive program that allows employees to take semi-annual skills tests to become eligible for promotion and/or wage increases (Martz, 1995). Priorities for Casco Bay services had been identified jointly by American Tool's management and the Advisory Committee established when CBP was initiated. As Carol Fleishman has said, "As the Casco Bay Partnership site coordinator for American Tool, I work closely with the Advisory Committee to create, plan and deliver courses for employees. I also get to teach classes with advisory committee members as students."

Carol Fleishman began her work with portfolios by trying to fit them into her on-going work and the courses she was teaching. She initiated student presentations of their work through a once-a-year graduation ceremony held at American Tool. Her finding of the powerful response of the workers to this experience was an important discovery that confirmed and supported the portfolio idea of public student presentations.

Practical Difficulties: When asked to reflect on the portfolio experiment at American Tool, Carol identified some clear difficulties in implementing a portfolio process within CBP classes. The first of these was practical, the sheer difficulty of finding the time to do it. Implementing a portfolio process clearly demands time--time for introducing the idea, for engaging students in gathering samples of their work, for reflecting on it, and for presenting it to each other. In the tight schedule of CBP classes, when some meet at 6 am or 10 pm, when there is already a full agenda of curriculum work to be done, fitting-in the portfolio demands adaptations and a re-evaluation of one's teaching goals and philosophy. More about this later.

Dilemmas of Identifying What You Want to Know: Is it Developmental? The seemingly simple task of asking workplace students to identify their goals, to say what it is

they want to learn can be quite complicated. Take for example two students Carol Fleishman encountered in a Life-long Learning Class she initiated at American Tool this year. When discussing the idea of identifying one's learning goals, asking what students wanted to learn, to achieve in the class, Carol Fleishman found that one woman could only say, "Everything! I want to learn everything!" When Carol discovered that this student, a recent immigrant to the US who came from a country where she, as a woman, had not been permitted to attend school at all, her response became understandable. The burning desire she felt to be at school, free to learn anything was simply overwhelming to her. She did want to learn everything. Yet, in this same class, another woman found constructing a portfolio to be the most profound experience of her career. The portfolio development process that of necessity demands that the student decide just what to include, what to showcase through the portfolio, clearly can be daunting. For this woman, the portfolio development process provided the opportunity to do what she was ready to do, that is, to reflect on who she is as a learner and a worker, and to make that public to herself and to others. The portfolio became the ideal vehicle to make visible who she had become in her own terms.

These contrasting examples raise the question of whether there is a developmental issue involved and revealed through the portfolio process. Are some student-workers more ready to connect with the rich and especially reflective processes that the portfolio encourages? Research currently going on with portfolio use in teacher education suggests this may be the case (Lyons, in press). Clearly in the examples presented here, it seems possible. It also seems possible that culture may be implicated as well, interacting in just how students approach learning, making something public, etc.

Does the Subject Matter? Carol Fleishman found a particular struggle in implementing the portfolio in her math classes. Thus the question can arise: Does a portfolio process lend itself more readily to some disciplines and not to others. Research with elementary and secondary students and with teacher interns suggest this is not the case--as do results from other Casco Bay faculty. But it is important to recognize that the question might need to be addressed.

Scaffolding New Skills Through the Portfolio Process: Finally, discussion with Carol Fleishman revealed something more: it seems that the portfolio process embeds a number of skills that students may not be familiar with--saying what you want to learn, setting goals, sharing work, presenting your own learning. In some ways the portfolio process can take these for granted, assuming students already have the skill to engage effectively in them. Yet they are more likely to be skills that have to be learned. And taught.

In her summary, Carol Fleishman identified as most significant to her the learning she herself has experienced being part of the portfolio experiment. Participating in the portfolio meetings, trying out aspects of the process had served an unsuspected role: it deepened her own understanding of some of her teaching practices, made her aware of the value of reflection. In addition, trying things out strengthened her resolve to do it again. In brief the portfolio experiment fostered her growth as a teacher, making her aware of her practices as well as the difficulties students might find in constructing portfolios.

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Case #2: Nichols Portland: The second case study focuses on the experiences of Casco Bay Partnership faculty member Paul Jacobson who was teaching at the Nichols Portland company.

Nichols Portland has for over a half a century been designing and building gerotors for use as pumping and motor elements in applications ranging from automotive oil pumps to high pressure hydraulic motors.

Nichols is an around-the-clock manufacturer, employing 411 people. Primary production jobs include machine operator and assembly positions. Approximately 15% of the employees are women. The average age is 39. The average length of tenure with Nichols is ten years. CBP classes offered at Nichols have included Basic Communications Skills, Computer as a Learning Tool, Computer Writing, Computer Math, Shop Math, Intro to Algebra, Intro to Geometry and Trigonometry, Workplace Science, Career and Life Planning, and Life Skills and Tools. Approximately 100 employees have taken CBP workplace education courses.

Many of the courses in math at Nichols Portland have been taught by CBP faculty member Paul Jacobson. Unlike the majority of instructors who teach for CBP, Paul Jacobson came directly from the world of business. For much of his career, Paul was an engineer at General Electric. Educated at MIT, and with his long work experience, Paul possesses business savvy and insights into a world which other CBP teachers learned and profited from in their discussions with him. One of Paul's classes provides an example of his way of working and his portfolio experience.

Six students enrolled in Paul's Geometry/Trigonometry class, all native speakers of English. Five of the six students were assembly workers. Paul attempted to build an environment that supported student learning, introducing learning as fun and learning math as especially "fun!" In this class, Paul was working at the students' understanding of Pi, a

concept of the relationship between a circumference of a circle and its diameter. But Paul was trying to make it more than that. He got his class so caught up in it that Pi became a class mascot--as well as something concrete to be understood and used.

The Value of the Portfolio Process to the Teacher: When the Teacher is a Learner:

Echoing an idea that was presented by Carol Fleishman, Paul commented in an interview about how becoming involved with the portfolio and the portfolio process had the greatest effect on him, "raising his consciousness." Even though he had worked in industry and was trained as an engineer, the idea of self-reflection was never encouraged or even expected. Thus encouraging students to reflect on their learning was something brand new to Paul himself.

Paul presented the idea of reflection half way through his class. Throughout the twelve week cycle he engaged students in talking about their work. What amazed Paul were the types of answers and the thoughtful responses that came from students. "Posing questions of this nature helps the student think about and reflect on their work." And Paul sees this as singularly connected to working the mind, a fundamental goal he has for students: "Just as we must exercise our bodies to maintain good physical conditioning so too must we work the mind--exercises in reflecting aid is doing this. "Paul presented his work on student reflection at the annual Portfolio Conference held in Cambridge (MA) mostly attended by teacher educators. This proved an eye-opener, that is, that his reflective work with students could be so well-received by other educators--work that had been done in a workplace classroom. In his summary, Paul suggested that perhaps the greatest learning had been achieved by the teacher.

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Case #3: Barber Foods: The third and final case study presented here focuses on Barber Foods. Barber Foods, a family owned business in Portland, Maine, is a manufacturer of frozen chicken entrees that are sold throughout the United States and internationally. It employs approximately 740 workers, many of whom have been placed in employment through Portland's refugee resettlement program of the Catholic Charities Organization. Almost half of the workforce at Barber Foods is made up of recent immigrants with limited English proficiency (who speak a total of 27 different languages). Additionally, over 50% of the native Maine workers have not graduated from high school and many are faced with requirements on the job that exceed their current skills levels. In light of these needs, priorities for a basic skills program were to improve workers skills.

Since 1995, Barber Foods associates have attended English as a Second Language classes (Levels-5), communications classes, computer classes, math/science classes (workplace math, GED math, algebra, geometry, workplace science), and a cross cultural communications class. Over 500 employees have participated in CBP classes. Classes are attended totally on associates' own time. Those associates who complete a 12 week cycle receive a bonus of $200 from the company.

Bo Hewey has been one of the CBP instructors at Barber Foods. He has been a strong proponent of the portfolio process, introducing it into many of his computer writing classes, encouraging students to keep their work, to reflect on it, and to present it to each other in small group portfolio presentation ceremonies at the end of a class. Bo has facilitated student reflection by interviewing his own students and writing up one or two paragraphs of what they tell him about their learning. He then gives that back to them, thus scaffolding reflection for

them in a most practical way. This process can be as important for the teacher.

Listening to Bo Hewey's students at one portfolio presentation in the spring of 1996 offers some insight into how the worker students responded to the portfolio idea. The students' presentations, chosen in consultation with their teacher, focussed on their writings using computers, the course they had just completed.

S, a woman who had fled Cambodia to find refuge in the United States began the portfolio session. Her story, "My Brother and Me" recounted some of her history, the terrifying moments of her family's escape from Cambodia and the terrible sadness of thinking about those left behind. S concluded, "That's it, that's my story. It's a kind of sad story. People ask if I care about my family left there. I do. But what can I do? I have no power. I am a woman."

As if S's story had sounded the theme of the day, others told similar sad stories. B, who had just received a letter from the Sudan, titled his story, "The Man Without a Country." It told of the exile from his native land--the horrors of war he had witnessed, of death, torture, and the enslavement of people he had seen. This history was repeating events that had happened in his father's life, terrible events in his African homeland.

But the five students of the class had other things to share from their portfolios as well. There were photos of families, of the celebrations of birthdays, of a child learning to walk, the photo of a son; letters from home; copies of notes to supervisors at Barber Foods where they all work; grateful notes of thanks for the opportunity Barber Foods gave them to work at the difficult task of learning English. And the conversations that engaged them told of their gratefulness to the United States for taking them in. Achievements were acknowledged--like

the purchase of a computer that would be useful to help a wife and child, to be taught by the student just completing his first computer class. The achievements with English were demonstrated in the stories being read.

At the end of the session students were asked what they thought of the portfolio process. "I liked it," said S. "It helps us look back at what we have achieved from the beginning." B said, "It is very nice to hear different experiences, different life stories. We are all different people with different experiences. But now (having heard these stories) we are a family. My family."

Another student picked up B's thought. "I realize that this helps us to understand people."...Another returned to another theme and continued: "Sometimes we don't believe what we have achieved. But the portfolio helps us to remember."

"Yes," S continued, "the portfolio is a memory. When we have taken a course like the computer, we can put our work into the portfolio and remember."

Implications

The Casco Bay Partnership Portfolio Project has clearly been an experiment in learning, for both students and faculty.

But what do we learn from the Casco Bay experience, from experimenting with portfolios that might be useful to others attempting such projects of their own? Several things/points come to mind:

✦ **Engaging in a portfolio process does demand that teachers rethink their courses, building in the teaching of the skills of portfolio making.** The issue is not simply whether one has the time to fit the portfolio process into an existing course. Portfolio making demands certain kinds of abilities: to say what one wants to learn, to set goals; to engage in reflection, distinguishing between describing a learning event, analyzing what went on, and then uncovering what one learned as a worker and a learner from the experience. These most often need to be taught to students.

✦ **Faculty may need mentors to support their portfolio efforts.** Having a forum for discussion of the portfolio process seems a good idea. For, as CBP faculty acknowledge, sometimes the process and portfolio making skills may be new to faculty themselves.

✦ **The portfolio presentation emerges as an important and powerful component of the portfolio process.** Asking students to present their work, strengthens their voice, their self-esteem and their vision of themselves as learners.

✦ **The portfolio process lends itself to various entry points as long as the process is seen as one having several elements that interact with one another.** The portfolio process is a process, it involves several interacting elements discussed earlier. It is not simply a presentation or setting goals or collecting samples of student work. It is all of that. And more. It is important to keep all of the elements in mind.

✦ **Portfolios can be used as part of an assessment system, as a means of encouraging professional growth and development, or for <u>both</u> assessment and development.** The portfolio process does not need to be construed as either-or. It can be both. It is up to those who choose to use it.

At a May 1997 meeting of the Portfolio Project, CBP faculty revised what they saw as key goals of the project and the courses they were teaching--helping students become reflective learners, bringing to consciousness student knowledge, and determining new learning goals. While keeping these in mind the faculty suggested a new, larger agenda, setting a greater challenge for themselves: how to integrate all of a student's work and learning, not simply a single course but learning over long stretches of time, connecting it always to new goals and life-long learning. This suggestion could have profound implications and only time will tell what it means. But the having of such an idea is a significant achievement of the portfolio process.

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